

**Abstract**

The invention relates to a three-dimensional flow cell for aligning non-isometric particles in a liquid sample in two axes, comprising a feed zone for the sample containing non-isometric particles to be aligned and an outlet for the sample containing non-isometric particles aligned in two axes, a fluid element of the sample with the dimensions  $a$ ,  $b$ ,  $c$  being transformed in an expansion zone into a fluid element with the dimensions  $a \times n$ ,  $b/n \times m$ ,  $c/m$ ,  $a$  being the width,  $b$  the height and  $c$  the length of the fluid element and  $n$  and  $m$  being constants which depend on the geometry of the flow cell and which signify positive numbers  $\geq 1$ , a method of aligning non-isometric particles in a liquid sample, the use of the three-dimensional flow cell, a reflectance sensor which has the three-dimensional flow cell according to the invention, a method of measuring the reflectance of a liquid sample containing non-isometric particles and the use of the reflectance sensor according to the invention.